



DEPARTMENT OF THE ARMY
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE
5158 BLACKHAWK ROAD
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REPLY TO
ATTENTION OF

MCHB-TS-OHH

16 August 2004

MEMORANDUM THRU U.S. Army Materiel Command (AMCPE-SG-H/LTC Nasir Siddique),
9301 Chapek Road, Fort Belvoir, VA 22060-5527

FOR Program Manager-Clothing and Individual Equipment (AMSRD-NSC-IP-A/
Ms. Kathy Swift), 10170 Beach Road, Fort Belvoir, VA 22060-5820

SUBJECT: Input to the Safety Confirmation for the Permethrin Treated Battledress Uniform
(BDU), Health Hazard Assessment Program Project No. 69-MP-4540-04

1. References. A list of references is provided in Appendix A.
2. Summary.

a. The Army's Health Hazard Assessment (HHA) Program is an Army Medical Department initiative in cooperation with and in support of the Army Materiel Acquisition Decision Process. A specific objective of the program is to enhance soldier performance and readiness by minimizing the effects of health hazards in the workplace (e.g., field operations, training devices, weapon systems, and clothing/individual equipment). The proponent for the HHA Program is The Surgeon General (TSG); however, TSG has designated the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) as the Lead Agent. The HHA Program supports your compliance with HHA requirements contained in DODI 5000.2 and Army Regulations (ARs) (references 1-5).

b. We are providing you with information to support a Safety Confirmation for the upcoming Milestone C and type classification for the use of Battledress Uniforms (BDUs) factory-treated with the insect repellent permethrin, as requested in your memorandum (reference 6). The HHA Reports (HHARs), summarized below, are still valid, unless the concentration of permethrin applied to the BDU material has increased above 0.125 mg/cm^2 .

Distribution authorized to DoD Components only; test and evaluation, Aug 04. Other requests shall be referred to the Program Manager, Clothing and Individual Equipment, ATTN: AMSRD-NSC-IP-A, 10170 Beach Road, Fort Belvoir, VA 22060-5820

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3. The HHA Program has completed a number of HHARs on the use/application of permethrin to the soldier's BDU over the past 20 years. Matrixed input to the HHARs was provided by our Toxicity Evaluation, Entomology, and Occupational Medicine Programs. Those HHARs and HHA-related reports are summarized here:

a. 1984 (reference 7). Recommended approval for clothing impregnation with permethrin at a concentration of 0.125 mg/cm^2 and requested additional information on each proposed application process.

b. 1987 (reference 8). Provided a toxicity review and recommendation for the selection of permethrin containing emulsifiers, and exposure controls for on-site impregnation methods and storage of impregnated uniforms.

c. 1994 (references 9, 10, and 11).

(1) Permethrin exposures in the civilian manufacturing environment do not fall within the scope of the Army's HHA Program. The handling, use, storage and disposal of Permethrin is the responsibility of the chemical manufacturer and fabric finisher and subject to local, state, and federal occupational safety and health regulations.

(2) The National Research Council's Committee on Toxicology (COT) concluded:

(a) Soldiers wearing the permethrin impregnated BDU are highly unlikely to experience adverse health effects at the suggested Permethrin exposure level (fabric impregnation concentration of 0.125 mg/cm^2).

(b) The risk of adverse health effects in garment workers handling permethrin impregnated fabric is smaller, because their dermal exposure is estimated to be less than that of soldiers.

(c) Soldiers wearing the permethrin impregnated BDU in field operations will benefit from protection from tick and mosquito bites, which in turn will protect them from Lyme Disease, malaria, viral encephalitis, and other insect-transmitted diseases.

(d) There are some gaps in the toxicity and exposure data for permethrin; however, the COT believes there are sufficient data to conclude that the wearing of permethrin impregnated BDUs or working with permethrin impregnated fabric will not lead to adverse health effects in military personnel or garment workers.

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(3) No additional recommendations were found to be necessary other than compliance with the recommendations provided in 1987 (reference 8).

4. The Army HHA Program assumed that the use of permethrin at the concentration of 0.125 mg/cm² for impregnating BDUs was approved and they were being provided to soldiers operating in areas with a high risk of exposure to biting arthropods. Arthropod exposures traditionally have resulted in large medical treatment costs and reduced readiness for Army units; now avoidable costs due to the use of permethrin impregnated BDUs and related equipment. Our assumption is based upon the facts that:


a. Allied military services are using permethrin treated BDUs.

b. The U.S. Centers for Disease Control and Prevention recommends the use of permethrin treated clothing, shoes, and bed nets for travelers (including children and pregnant women) (reference 12).

c. The application process is patented by the U.S. Army (reference 13) and commercially available permethrin impregnated clothing and related items are approved/registered by the U.S. Environmental Protection Agency for the general public's use (reference 14).

5. Direct inquiries regarding this matter to the undersigned or the HHA Program point of contact (POC), Mr. Robert Gross, at DSN 584-2925 or COM 410-436-2925. The contributing programs and POCs within USACHPPM include the Toxicity Evaluation (Dr. Will McCain, DSN 584-7388 or COM 410-436-7388) and Entomology (Ms. Sandra Evans, DSN 584-3613 or COM 410-436-3613) Programs. Please complete and return the electronic version of USACHPPM Form 323.

FOR THE COMMANDER:

Signature Authenticated by ApproveIt, 
Approved by: Timothy A Kluchinsky
on: Monday, 16 August, 2004 at 10:31:48

TIMOTHY A. KLUCHINSKY, JR
MAJ, MS
Manager, Health Hazard
Assessment Program

CF:
TRADOC
DLA/DES-E (Mr. Jan Reitman)

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APPENDIX A

References

1. DODI 5000.2, Operation of the Defense Acquisition System, 12 May 03.
2. AR 40-10, Health Hazard Assessment Program in Support of the Army Materiel Acquisition Decision Process, 1 Oct 91.
3. AR 70-1, Army Acquisition Policy, 31 Dec 03.
4. AR 385-16, System Safety Engineering and Management, 2 Nov 01.
5. AR 602-2, Manpower and Personnel Integration (MANPRINT) in the System Acquisition Process, 1 Jun 01.
6. Memorandum, PM-CIE, AMSRD-NSC-IP-A, undated, subject: Safety Confirmation for Permethrin Treated Battledress Uniform (BDU).
7. Memorandum, USAEHA, HSHB-OA, 26 Jul 84, subject: HHAR on Permethrin as an Insect/Arthropod Repellent Applied to Military Clothing, Project No. 69-37-4540-84.
8. 2nd End, USAEHA, HSHB-MO-A, 4 Aug 87, to memorandum, U.S. Army Medical Materiel Development Activity, SGRD-UMB, 11 May 87, subject: HHA of Permethrin as an Insect/Arthropod Repellent Applied to Military Clothing, Project No. 69-37-4540-87.
9. 2nd End, USACHPPM, MCHB-MO-A, 24 Aug 94, to memorandum, Project Manager-Soldier, AMCPM-SDR, 21 Jul 94, subject: Permethrin Treatment of the Desert BDU, Project No. 69-37-X3UA-94.
10. Health Effects of Permethrin-Impregnated Army BDUs, National Academy Press, National Research Council-Committee on Toxicology, Washington, DC, 1994.
11. Memorandum, National Research Council-Committee on Toxicology, 1 Aug 94, subject: Recommendations Regarding Further Research in the COT Report on Health Effects of Permethrin Treated BDUs.

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12. The Yellow Book: Health Information for International Travel, 2003-2004, U.S. Centers for Disease Control and Prevention, Traveler's Health-Pregnancy, Breast-Feeding, and Travel (<http://www.cdc.gov/travel/prenant.htm>), Disease Specific Recommendations (http://www.cdc.gov/travel/children_disease_recs.htm), and Protection Against Mosquitoes and Other Arthropods (<http://www.cdc.gov/travel/bugs.htm>).

13. U.S. Patent and Trademark Office, Process and System for Impregnating Garments with Insect Repellant (U.S. Patent Nos. 5,884,418 and 5,930,909) (<http://patft.uspto.gov>).

14. USEPA, Office of Pesticide Programs, Notice of Pesticide Registration No. 74843-1 (3 Jan 03) and -2 (7 Jul 03).